

Improving Self-Efficacy of Type 2 Diabetes Patients in the Primary Care Setting

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## Abstract

**Problem:** Diabetes is a complex disease and due to its chronicity, self-management education is essential to controlling its progression. Many primary care providers (PCP) surveyed, believe they do not have enough time during a routine office visit to educate patients on diabetes self-management skills to enhance their self-efficacy.

**Project Aim:** This project had three aims: (a) introduce providers to the American Diabetes Association's (ADA) Living with Type 2 Diabetes program; (b) introduce type 2 diabetes mellitus (T2DM) patients to the ADA's Living with Type 2 Diabetes program; and (c) assess patient's utilization and level of increased self-efficacy.

**Project Method:** Project participants were made up of a convenience sample of referred adult T2DM patients from PCPs over the course of four weeks. This online program was directed towards referred diabetic patients to enhance their understanding of this disease. After one month of collecting consents, an orally administered phone survey was completed. An analysis was concluded based on results from the phone survey of patient utilization and satisfaction of the ADA's online education program.

*Keywords:* Diabetes Algorithm of Care, Living with Type 2 Diabetes Program, diabetes self-management education (DSME), primary care, diabetes mellitus type 2, self-efficacy and diabetes, Social Cognitive Theory (SCT)

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## Improving Self-efficacy of Type 2 Diabetes Patients in the Primary Care Setting

The benefits of diabetes self-management education (DSME) are well supported in the literature. Conceptually, DSME is defined as the process of aiding and implementing the knowledge, proficiency and competence needed for diabetes self-care (ADA, 2014). The American Diabetes Association (ADA) has published standards in DSME which consist of diet, exercise, medication adherence, blood glucose monitoring, preventing and detecting common complications, strategies to address psychosocial issues and ways to promote change behavior (2014). Operationally, DSME is defined as a process which includes life experiences and needs of the diabetic patient that is guided by evidence-based research (Powers et al., 2016). Treatment for diabetes requires a multifaceted approach to achieve optimum levels of control to prevent a multitude of systemic complications. DSME and the resultant problem-solving skills is an important aspect of disease management (Pereira, Phillips, Johnson & Vorderstrasse, 2015). Both patients and providers agree that DSME is essential to promoting self-efficacy, reduce complications from diabetes, improve quality of life and decrease the incidence of diabetes-related depression (Krall et al., 2017). Hemoglobin A1c (HbA1c) levels dropped even more when DSME training was provided within the first year of diagnosis (Nicoll et al., 2014). Due to its chronic nature, type 2 diabetes mellitus (T2DM) is best managed by educating patients on ways to control their disease and prevent end organ damage. However, most patients with T2DM do not receive a referral to DSME, in fact, less than 7% of newly diagnosed patients with T2DM ever receive DSME training (Chrvala, Sherr & Lipman, 2015).

Research suggested that by offering an educational tool to primary care providers (PCP), this enhanced utilization of DSME among T2DM patients. For example, higher self-efficacy rates lead to better blood sugar control, increased physical activity, improved medication

compliance and enhanced mental health–related quality of life (Piccinino et al., 2017). However, these tools impacted time management in the primary care setting. Research exposed the need for improvement in delivery methods and participation of DSME to relieve the provider’s burden of responsibility during a routine office visit. A U.S. Census Bureau survey in 2015 showed better access to DSME through internet-based and mobile phone programs may offer a solution to this barrier. Additionally, research data indicated that patients who accessed DSME interventions provided through mobile channels, such as cellular phones, showed a greater improvement in HbA1c levels than computer-based programs (as cited in Ryan & Lewis, 2017).

### **Background and Significance**

It is estimated that by 2050, one in three people of the United States population, will develop T2DM (Piccinino et al., 2017). Our current census shows diabetes affects 30.2 million Americans or 9.4% of the population, with another 84.1 million, aged 18 years and older, classified as prediabetic. Of those 84.1 million prediabetic individuals, only 11.6% of them were told by their PCP that they were prediabetic. Diabetes ranks seventh in cause of death in the United States (Centers for Disease Control and Prevention [CDC], 2017).

In 2014, an estimated 1.5 million diabetes patients were hospitalized with complications due to ischemic heart disease and stroke (CDC, 2017). Another 108,000 diabetes patients were hospitalized due to lower-extremity amputations and 168,000 for diabetic ketoacidosis. Of the 30.2 million Americans living with diabetes in 2014, 36.5% developed stages 1-4 chronic kidney disease and 52,159 diabetic patients developed end-stage renal disease (ESRD). Of the reported new cases of ESRD, 44% are directly caused by complications due to diabetes (CDC, 2017).

The financial burden is only one part of the consequence, but a major one. The direct and indirect estimated cost of diabetes in 2012 was \$245 billion. Average yearly cost for a person

with diabetes is \$13,700, which is 2.3 times higher than for people without diabetes (CDC, 2017).

### **Barriers to Providing DSME in the Primary Care Setting**

Successful DSME in the primary care setting faces many obstacles. For example, Piccinino et al. (2017) found that challenges to providing suitable DSME training include lack of referral to DSME, limited ADA accredited education courses, time restraints with the PCP and insurance reimbursement for DSME. Traditionally, PCPs have been relied upon for diabetes education. Recent data showed that providers have limited time for patient visits, let alone DSME. Many providers felt they did not have adequate time to provide education to their diabetes patients and there was a shortage of staff available to aid with educational needs (Marynuik, Mensing, Imershein, Gregory, & Jackson, 2013). Also, education in the multiple components of DSME was very difficult to carry out in the short amount of time during a routine office visit (Chomko, Odegard, & Evert, 2016).

Insurance companies require formal education classes with DSME to be accredited by the ADA to receive reimbursement (White, Manning, Brawer, & Plumb, 2014). To ensure all aspects of self-care are covered, the ADA includes ten standards of focus for accreditation (Beck et al., 2017): (a) internal structure with a defined mission statement, (b) ongoing expert and stakeholder input, (c) evaluation of the populations served, (d) quality coordinator to oversee the DSME services, (e) a registered nurse, registered dietitian or pharmacist certified as a diabetes educator be responsible for DSME training services, (f) evidence based practice curriculum, (g) individualized DSME programs, (h) ongoing support provided to T2DM patients, (i) a PCP will monitor whether educational goals are met, and (j) the quality coordinator at the site will monitor the impact and effectiveness of DSME and identify areas for improvement. Research on the



ADA's website of accredited DSME programs within a 25-mile radius of downtown Kansas City yielded only 17 sites, (ADA, 2018).

As discussed above, there are several obstacles to providing DSME in the primary care setting including time restraints with the PCP, lack of referral to DSME, limited ADA accredited education courses, and insurance reimbursement. This highlights the importance of this pilot project to increase usage of the ADA's Living with Type 2 Diabetes online program for the long-term management of diabetes.

### **Organizational Analysis of Project site**

During a clinical rotation at a family practice in Lee's Summit, MO, the writer observed a shortage of staff support to aid with DSME and scarcity of provider time for education. The standard for routine office visits at this clinic is 15 minutes. A PCP is expected to review past medical history, update medication lists, review labs, inquire of side effects and do a physical assessment during a routine 15-minute office visit. This is a daunting task to expect of our providers to also include DSME, individualized to the patient's specific needs.

### **Statement of Problem**

In this demanding primary care clinic in Lee's Summit, MO, providers have limited time to provide individualized DSME within a 15-minute office visit. They are looking for an efficient but effective tool to help patients manage their diabetes.

### **Goals, Objectives and Outcomes**

The goals of this pilot project were to: (a) introduce providers to the ADA's Living with Type 2 Diabetes program, (b) collect patient referrals from the PCPs, (c) introduce referred T2DM patients to the ADA's Living with Type 2 Diabetes program, and (d) assess patient's use of the ADA program and improvement of self-efficacy.

## **DSME Tool**

While face-to-face format for DSME is considered the gold standard (Pal et al., 2014), research shows factors limiting its access such as, only one diabetes educator per 1,400 diabetic patients in the U.S, and lack of insurance reimbursement (Pereira et al., 2015). Alternatives have been developed to deal with this obstacle. The Living with Type 2 Diabetes Program is an online format available in English and Spanish. The free 12-month program includes an online forum where members have access to local events and an online community. The program also includes free issues of *Diabetes Forecast* magazine, education on choosing the proper food, recipes, tips for weight loss, and success stories (ADA, 2017). In comparing DSME in a face-to-face clinic setting to internet-based programs and mobile phone applications, there was a mean difference in HbA1c levels at -0.2% with computer-based program and -0.5% with mobile phone applications versus control group (Pal, et al., 2014). Also, comparing internet delivered DSME to the standard of care resulted in a mean difference in HbA1c levels of -1.53% vs. -0.49%. The decrease in HbA1c levels with internet-based programs is attributed to flexibility of online education vs. attending a class (Pereira et al., 2015).

Internet based education programs may not be for everyone, but according to the U.S. Census Bureau in 2015, 84.4% in the 35-44 age bracket and 80.9% of the 45-64-year-old age group had a subscription to the internet and 63.1% ages 65 and older indicated home internet usage (as cited in Ryan & Lewis, 2017). This makes the online ADA program a viable alternative to standard face-to-face education to augment DSME compliance.

## **Review of the Literature**

A review of literature was conducted to find supporting evidence on the importance of DSME. CINAHL and Pub Med Databases were searched for articles using the key words:

*American Diabetes Association, ADA, Diabetes Algorithm of Care, Living with Type 2 Diabetes Program, diabetes self-management education, DSME, primary care providers, PCP, diabetes mellitus type 2, T2DM, diabetes complications, cost of diabetes, self-efficacy and diabetes, Social Cognitive Theory, SCT.*

Inclusion criteria was English language, primary and secondary journal articles dated 2013-2018 and diabetes management in the primary care setting. After applying the inclusion criteria, 11 articles were included in the review of literature.

## **DSME**

**Importance in management of DSME.** The consensus across all research levels of articles reviewed found that DSME within the primary care setting showed a significant decrease in glycemic levels, especially if provided within the first year of diagnosis (Chomko, 2016; Chrvala, 2015; Krall, 2017; Nicoll, 2014; Pal, 2014; Pereira, 2015). In fact, Nicoll et al. (2014) conducted a retrospective cohort study that found HbA1c levels dropped by 2.7% when DSME training was provided within the first year of diagnosis.

**Standards of DSME.** The ADA, the American Association of Diabetes Educators, and the Academy of Nutrition and Dietetics published a joint position statement on the standards of DSME that includes Diabetes Algorithm of Care and Actions Steps. The recommended stages of implementing the Algorithm of Care include, within the timeframe of diagnosis, with annual assessments, when new or complicating factors affect self-management and with transition of care (Powers et al., 2016). A copy of the algorithm is provided in Figure 1. A copy of the action steps is provided in Figure 2.

**ADA as leader in DSME.** The ADA's Living with Type 2 Diabetes program was chosen for this pilot project due to their history and dedication to diabetes education. For over 75 years

(ADA, 2015), the ADA has been committed to enhancing the quality of life in its diabetic community with their enrichment in education, disease management and progress in treatment. Since 1952, the ADA (2015) has invested more than 700 million dollars and supported over 4500 research projects to aid in the advancement of diabetes management and treatment. This program, written by the ADA, would also meet the National Standards for DSME as outlined previously.

**Provider and patient barriers.** Many PCPs find that of all the chronic diseases managed within the primary care setting, diabetes is the most difficult (Krall et al., 2017), due to constant monitoring and medication adjustments. Krall et al. also reported that PCPs lack clear guidance about when to refer patients for DSME (2017). In fact, so few patients are referred for DSME that Chrvala, Sherr, and Lipman (2016) conducted a systematic review which showed that less than 7% of newly diagnosed diabetes patient with private insurance and less than 5% with Medicare ever receive a referral to DSME.

Surveys by Marynuik et al. (2013) and Piccinino et al. (2017) identified barriers to providing DSME that included time restraint, lack of DSME referral and limited insurance coverage. Chomko et al. (2016) found that of the PCPs surveyed, 62% believed they did not have enough time during a standard clinic appointment to offer enough diabetes education to their patients. Of these same PCPs, 37% felt that lack of support staff was another cause of poor DSME offering.

Lack of time and support are only two obstacles. In a retrospective cohort study, Mehta et al. (2017) showed there is a disconnect between knowledge and proper use of diagnosis guidelines. Of the PCPs surveyed, 38% admitted awareness to both ADA and the U.S.

Preventative Services Talk Force guidelines, but only one-third of those surveyed had used the guidelines and referred patients for DSME.

Nicoll et al. (2014) surveyed 133 participants in medical management that included DSME and found only 43 continued the study during the review period due to lack of insurance coverage. Other factors limiting access to DSME (Pereira et al., 2015) are limited insurance reimbursement, difficulty attending a class and limited diabetes educators.

### **Theoretical Framework**

The theoretical framework used to guide this pilot project is Bandura's Social Cognitive Theory (SCT). This theory consists of the following core set of determinants with the most significant impact on healthy behavior practices:

The core determinants include *knowledge* of health risks and benefits of different health practices, *perceived self-efficacy* that one can exercise control over one's health habits, *outcome expectations* about the expected costs and benefits for different health habits, the health *goals* people set for themselves and the concrete plans and strategies for realizing them, and the *perceived facilitators* and social and structural *impediments* to the changes they seek. (Bandura, 2004, pp 144).

The core determinant this pilot project will focus on is perceived self-efficacy as defined by Bandura:

Self-efficacy is a focal determinant because it affects health behavior both directly and by its influence on the other determinants. Efficacy beliefs influence goals and aspirations. The stronger the perceived self-efficacy, the higher the goals people set for themselves and the firmer their commitment to them. Self-efficacy beliefs shape the outcomes people expect their efforts to produce. Those of high efficacy expect to

realize favorable outcomes. Those of low efficacy expect their efforts to bring poor outcomes. Self-efficacy beliefs also determine how obstacles and impediments are viewed. People of low efficacy are easily convinced of the futility of effort in the face of difficulties. They quickly give up trying. Those of high efficacy view impediments as surmountable by improvement of self-management skills and perseverant effort.

(Bandura, 2004, pp 145)

The relationship of self-efficacy, health literacy, and self-care behaviors in diabetic patients, using the SCT model, found the most crucial factors affecting morbidity of diabetic patients are their self-care behaviors. These areas of compliance are related to the medication treatment plan, blood sugar control with frequent monitoring, following a healthy diet, and regular exercise. Self-efficacy is a significant factor influencing self-care behaviors in diabetes management. Thus, individuals with poor health promotion habits, have a lower rate of self-efficacy, which is consistent with Bandura's SCT (Masoompour, Tirgari, & Ghazanfari, 2017).

## **Methods**

### **Project Design**

The design for this project was The Model for Improvement. The Institute for Healthcare Improvement, (2018) published this model which includes three fundamental questions that may be discussed in any order: "What are we trying to accomplish? How will we know that a change is improvement? What changes can we make that will result in improvement?" (p. 2). The Model for Improvement uses the Plan, Do, Study, Act (PDSA) template for setting up a project and provides a roadmap to aid in developing suitable questions to be answered. The PDSA cycle is a valuable tool to test change by developing a plan, testing the change, then observe or analyze which modifications are needed to run the next cycle (Institute for Healthcare Improvement,

2018). Over time, researchers will find answers to make improvements in their healthcare setting.

The Model for Improvement is appropriate for quality process improvements with clear evidence-based solutions. It is an efficient and straightforward design that can be applied to both small and large projects. This makes it possible for all staff members to apply the framework for any project (Silver et al., 2016).

### **Project Sample**

Project participants were made up of a convenience sample of referred adult T2DM patients from PCPs over the course of four weeks. The T2DM patients volunteered to be part of the DNP project and consent was obtained during initial contact.

### **Project Barriers**

The providers at the family practice clinic in Lee's Summit were supportive and believed that providing online education to their T2DM patients would improve self-efficacy. Due to circumstances preventing the project from being performed within the clinic setting, the PCPs provided referrals to sign up for the online education with the ADA. Other barriers included patient's ability to access a computer, referrals not returning calls to participate in the program and sample size.

### **Protection of Human Subjects**

The University of Kansas Internal Review Board (IRB) approval was obtained prior to initiating the DNP project. The completed IRB Determination Form is provided in Figure 3.

The human subjects' component of this project was limited to T2DM patients > 18 years of age and consent obtained during recruitment. There was minimal risk for patients included in this project. One potential risk to the subjects was loss of confidentiality. None of the surveys

were linked to the patient' names or contact information directly. Patients did not receive any direct benefit from this project and no monetary compensation.

Consent was obtained from each T2DM patient over the age of 18 for the phone survey. Three PCPs referred seven T2DM patients, and the referrals grew into a total of 18 contacts for this convenience sample. To gather phone consents, a checklist was required to address all the topics to be covered with each participant. The checklist was created to introduce participants to the researcher and purpose of participating in the online education. To ensure each participant understood the online education and explain the phone survey was voluntary and they could opt out at any time. To inform participants of the approximate length of online education and phone survey, as well as inform about confidentiality and the use of the study data: who will have access to the data, how it will be used, and how long it will be kept. A statement about risks and benefits of the study was provided and offer to answer any questions. The checklist also included contact information for the researcher if the participants had any questions. Phone consent checklist is provided in Appendix A. Phone Consent form provided in Appendix B. As some of the consents were obtained during a face-to-face contact, the phone consent checklist was not required. The face-to-face consent form included written information on who the researcher is and how to contact them. It also mentioned the purpose of the research and explanation of where the online education will be completed and voluntary participation in a 5-minute post education phone survey. The consent covers information on risks and benefits, there are no personal benefits or risks to participating in this study and that no identifiable information will be collected. Face-to-face consent form provided in Appendix C.

Assistance was provided to participants on how to locate and signup for the online



education. After four weeks, phone surveys were completed on patient's experience with the ADA's Living with Type 2 Diabetes Program.

Upon completion of phone survey and analysis of results, all consents and survey forms were taken to Kansas University Medical Center School of Nursing for manual shredding of personal information.

### **Measurement Instruments and Data Collection**

The survey was provided in collaboration with the ADA and included basic questions on age, gender and ethnicity. The survey then asks how long ago the participant was diagnosed with T2DM and whether they had ever participated in a DSME course. The last three questions were measured on a Likert Scale to compare responses. The questions included; "Overall, how satisfied are you with the Living with Type 2 Diabetes resources?", "To what extent do you feel the Living with Type 2 Diabetes material may help you better manage your diabetes?", and "How likely is it that you would recommend Living with Type 2 Diabetes resources to a friend or family member who has type 2 diabetes?" (ADA's Living with Type 2 Diabetes Program Follow-up Survey). Survey form is provided in Appendix D.

## **Results**

### **Data Analysis**

A basic analysis was done including proportions to determine if the Living with Type 2 Diabetes online program improved self-efficacy within this population. As shown in Table 1, there were twice as many males recruited for this project than females and most of the population surveyed were of white ethnicity. The age of participants ranged from 35 - 74 years old and this group represented a variety of years since diagnosis. More members of this survey group had attended a formal DSME class and the majority of the participants were very satisfied with the

Living with Type 2 Diabetes resources. For the question directly related to self-efficacy, 83% of the participants felt the ADA's program would help them better manage their diabetes, and almost all of the participants would refer a friend or family member with T2DM to the ADA's program. Summary of the ADA's Living with Type 2 Diabetes Program Follow-up Survey is provided in Table 1.

**Table 1. Summary ADA's Living with Type 2 Diabetes Program Follow-up Survey**

Characteristic	Answered	
	<i>n</i>	%
Gender		
Female	4	0.33
Male	8	0.67
Other		
Prefer not to answer		
Age (Years)		
18 - 24		
25 - 29		
30 - 34		
35 - 39	1	0.08
40 - 44		
45 - 49	3	0.25
50 - 54	3	0.25
55 - 59	1	0.08
60 - 64		
65 - 74	4	0.33
75 and older		
Race/Ethnicity		
Native American/Alaska Native		
Asian		
Hispanic or Latino		
Black/African American	2	0.17
Native Hawaiian/ Pacific Islander		
White	10	0.83
Two or more races		
Other		
Prefer not to answer		
When were you diagnosed with diabetes?		
Less than 1 year ago	2	0.17
1 to 5 years ago	4	0.33
6 to 10 years ago	1	0.08

11 to 20 years ago	4	0.33
More than 20 years	1	0.08
Have you gone to DSME classes?		
Yes	7	0.58
No	5	0.42
Not sure		
Overall, how satisfied are you with the LWT2D resources?		
1- Not at all satisfied		
2-	1	0.08
3-		
4-	1	0.08
5- Very satisfied	10	0.83
To what extent do you feel the LWT2D materials helped you better manage your diabetes?		
1- Not at all		
2-		
3-	2	0.17
4-	3	0.25
5- Very much	7	0.58
How likely is it that you would recommend LWT2D resources to family/friend with T2DM?		
10- Extremely likely	11	0.92
9		
8		
7		
6		
5	1	0.08
4		
3		
2		
1		
0- Not at all likely		

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*Note.* DSME = diabetes self-management education; LWT2D = Living with type 2 diabetes; T2DM = type 2 diabetes mellitus.

## Discussion

### Impact of results

Even with a small group sample, as with this project, it is important to point out there was a large percentage of participants that believed the ADA's online DSME could positively impact their diabetes self-management skills. With 82% of participants scoring a 4 or 5, on a Likert

Scale of 1 to 5, with 5 meaning “very much”, in response to the survey question whether they feel the Living with Type 2 Diabetes material would help them better manage their diabetes. Better management of the disease process through education directly relates to improved self-efficacy as previously mentioned in Bandura’s SCT.

### **Strengths and Limitations**

The goal for this pilot project was implementation in a primary care practice and due to unforeseen complications, a convenience sample, using PCPs patient referrals had to be executed instead. The target was to recruit 30 or more people to participate in the online education program, though only 18 patients were referred with 12 participants. This project was able to do one run of the PDSA cycle to measure quality improvement.

Another limitation to this project, is the inability to reach diabetes patients who are part of the underserved population. Those without access to a home or work computer will not benefit from the ADA’s online education and will have to rely on other resources.

Despite some limitations, findings of this pilot project indicate that online educational resources are a viable alternative to face-to-face education. With only one individual scoring a “2” as not being very satisfied with the educational offering, this individual was “already well-controlled” with their diabetes, it supports the ADA’s efforts in targeting newly diagnosed or those individuals who had not previously received DSME training.

### **Plan for Dissemination of Project**

Findings of this quality improvement project will be of interest to the PCPs involved in recruiting for the convenience sample. Strengths and limitations will be summarized so this program may be more appropriately implemented with their T2DM patients in their practice setting.

The ADA has supplied 300 free copies of their booklet titled, *Living with Type 2 Diabetes: Where Do I begin?* There is no out of pocket expenses to the providers at the family practice clinic. The providers at this clinic will benefit from a free DSME tool to offer their patients with the idea that this tool will help them offer affordable and reliable DSME to their diabetes patients within limited clinic appointments times. Diabetes patients will benefit from a free DSME tool to help them increase their self-efficacy and better manage their diabetes.

### **Future Implications**

This pilot project demonstrated that more sequences of the PDSA cycle are needed to gather statistical analysis to show improvements in self-efficacy. By increasing access to DSME through online resources such as the ADA's Living with Type 2 Diabetes program, this would improve self-efficacy and ultimately a reduction in HbA1c of 1.53%, as indicated by Pereira et al. (2015). This would answer the following questions in the PDSA cycle "What are we trying to accomplish? How will we know that a change is improvement? What changes can we make that will result in improvement?" (Institute for Healthcare Improvement, 2018, p. 2).

### **Conclusion**

The purpose of this pilot project was to improve self-efficacy of T2DM patients in the primary care setting using the ADA's Living with Type 2 Diabetes Program. With the incidence of T2DM on trend for rapid growth, and limited resources to provide DSME, the need for alternative options in providing education has never been more critical. Research shows a lack of time, staff and resources to allow providers to supply the necessary education to their T2DM patients during a 15-minute office visit. By educating providers on using a proven online tool, this affords them the opportunity to provide the necessary self-management education needed to support patients in managing their chronic illness and prevent complications.

As discussed, we face a future where a possible 33% of the U.S. population will be struggling with T2DM. DSME, with its multiple components, is very difficult to offer during a routine office visit. Research shows that diabetes is mostly self-managed, which makes DSME the most important aspect in achieving ideal outcomes and increasing self-efficacy.

Internet access is widely used across all age groups and the implementation of an internet-based DSME program is an inspired alternative to reach a large majority of patients currently not receiving DSME training. This makes the ADA's Living with Type 2 Diabetes Program, a viable alternative to standard DSME practices in improving self-efficacy of type 2 diabetes patients in the primary care setting.

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## **Appendix A**

### **Phone Consent Checklist**

- Introduction of the researcher and how the researcher obtained the contact information of the participant.
- A statement that the project involves research and that participation is completely voluntary.
- The purpose of the phone survey or interview and what participants will be asked to do.
- The approximate length of the phone call.
- Information about confidentiality and the use of the study data: who will have access to the data, how it will be used, how long it will be kept.
- A statement about risks and benefits of the study.
- An offer to answer any questions about the above information.
- An invitation to choose whether or not to participate in the research.
- Contact information for the researcher if the participant has questions after the phone call.

**Appendix B**

## Phone Consent Form

Date \_\_\_\_/\_\_\_\_/\_\_\_\_

Participant Name: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Best time to contact: Morning\_\_\_\_ Afternoon \_\_\_\_\_ Evening \_\_\_\_\_

## Appendix C

### Face-to-Face Consent Form

Dear Participant,

Lisa Nelson, RN is recruiting research participants to determine the usefulness of an online diabetes self-management education program entitled Living with Type 2 Diabetes, sponsored by the American Diabetes Association. Participation involves completing a phone survey that will take about 5 minutes. No identifiable information will be collected about you, and the survey is anonymous.

There are no personal benefits or risks to participating in this study. Participation is voluntary, and you can stop taking the survey at any time.

If you have any questions, please contact Lisa Nelson, RN. For questions about the rights of research participants, you may contact the KUMC Institutional Review Board (IRB) at: (913) 588-1240 or [humansubjects@kumc.edu](mailto:humansubjects@kumc.edu)

Sincerely,

Lisa Nelson, RN

DNP student

816-210-8328

[l374g417@kumc.edu](mailto:l374g417@kumc.edu)

By signing this form, you are freely and voluntarily consenting to participate in this pilot project. You have read the information and had your questions answered.

***You will be given a signed copy of the consent form to keep for your records.***

Date \_\_\_\_/\_\_\_\_/\_\_\_\_

Participant Name : \_\_\_\_\_  
(please print)

Participant Signature : \_\_\_\_\_

Best time to contact: Morning \_\_\_\_\_ Afternoon \_\_\_\_\_ Evening \_\_\_\_\_

Phone # \_\_\_\_\_

## **Appendix D**

### **ADA's Living with Type 2 Diabetes Program**

#### **Follow-up Survey**

##### **1. What is your gender?**

- ☐ Male
- ☐ Female
- ☐ Other
- ☐ Prefer not to answer

##### **2. How old are you?**

- ☐ 18 to 24
- ☐ 25 to 29
- ☐ 30 to 34
- ☐ 35 to 39
- ☐ 40 to 44
- ☐ 45 to 49
- ☐ 50 to 54
- ☐ 55 to 59
- ☐ 60 to 64
- ☐ 65 to 74
- ☐ 75 years or older

##### **3. What is your race/ethnicity?**

- ☐ American Indian or Alaska Native
- ☐ Asian

- ☐ Black or African American
- ☐ Hispanic or Latino
- ☐ Native Hawaiian or other- Pacific Islander
- ☐ White
- ☐ Two or more races/ethnicities
- ☐ Other
- ☐ Prefer not to answer

**4. When were you diagnosed with diabetes?**

- ☐ Less than 1 year ago
- ☐ 1 to 5 years ago
- ☐ 6 to 10 years ago
- ☐ 11 to 20 years ago
- ☐ More than 20 years ago

**5. Have you gone to Diabetes Self-Management Education (DSME) classes?** *Diabetes Self-Management Education (DSME) classes usually require a referral from a health care **provider**.*

- ☐ Yes
- ☐ No
- ☐ Not sure

**6. Overall, how satisfied are you with the Living with Type 2 Diabetes resources?**

- ☐ 1-Not at all satisfied
- ☐ 2
- ☐ 3
- ☐ 4

- ☐ 5-Very satisfied

**7. To what extent do you feel the Living with Type 2 Diabetes material may help you better manage your diabetes? Use a scale of 1 to 5 with 1= Not at all and 5=Very much.**

- ☐ 1- Not at all
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5- Very much

**8. How likely is it that you would recommend Living with Type 2 Diabetes resources to a friend or family member who has type 2 diabetes?**

- ☐ 10- Extremely likely
- ☐ 9
- ☐ 8
- ☐ 7
- ☐ 6
- ☐ 5
- ☐ 4
- ☐ 3
- ☐ 2
- ☐ 1
- ☐ 0- Not at all likely

*Note.* This survey is a modification of the American Diabetes Association Pre/Post Living with Type 2 Diabetes Impact Survey.



Figure 1

## Diabetes Algorithm of Care

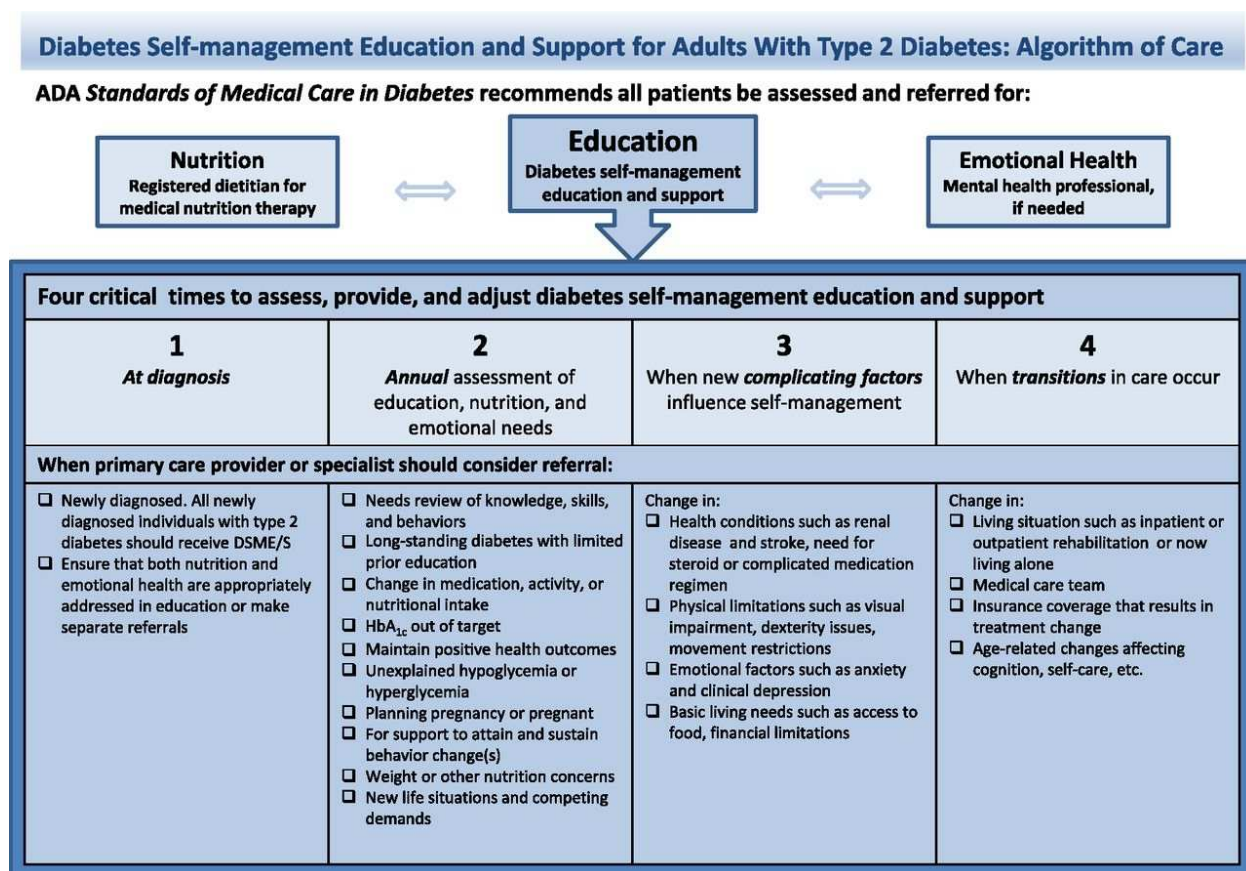


Figure 1

*Note.* Adapted from “Diabetes Self-Management Education and Support in Type 2 Diabetes: A Joint Position Statement of the American Diabetes Association, the American Association of Diabetes Educators, and the Academy of Nutrition and Dietetics,” by M.A. Powers, J. Bardsley, M. Cypress, P. Duker, M.M. Funnell, A.H. Fischl, M.D. Maryniuk, and E. Vivian, 2016, *Clinical Diabetes*, 34(2), 70-80.

Figure 2

## Algorithm Action Steps

Diabetes Self-management Education and Support Algorithm: Action Steps			
Four critical times to assess, provide, and adjust diabetes self-management education and support			
At diagnosis	Annual assessment of education, nutrition, and emotional needs	When new <i>complicating factors</i> influence self-management	When <i>transitions</i> in care occur
Primary care provider/endocrinologist/clinical care team: areas of focus and action steps			
<ul style="list-style-type: none"> <li><input type="checkbox"/> Answer questions and provide emotional support regarding diagnosis</li> <li><input type="checkbox"/> Provide overview of treatment and treatment goals</li> <li><input type="checkbox"/> Teach survival skills to address immediate requirements (safe use of medication, hypoglycemia treatment if needed, introduction of eating guidelines)</li> <li><input type="checkbox"/> Identify and discuss resources for education and ongoing support</li> <li><input type="checkbox"/> Make referral for DSME/S and MNT</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Assess all areas of self-management</li> <li><input type="checkbox"/> Review problem-solving skills</li> <li><input type="checkbox"/> Identify strengths and challenges of living with diabetes</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Identify presence of factors that affect diabetes self-management and attain treatment and behavioral goals</li> <li><input type="checkbox"/> Discuss effect of complications and successes with treatment and self-management</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Develop diabetes transition plan</li> <li><input type="checkbox"/> Communicate transition plan to new health care team members</li> <li><input type="checkbox"/> Establish DSME/S regular follow-up care</li> </ul>
Diabetes education: areas of focus and action steps			
<p>Assess cultural influences, health beliefs, current knowledge, physical limitations, family support, financial status, medical history, literacy, numeracy to determine content to provide and how:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Medications—choices, action, titration, side effects</li> <li><input type="checkbox"/> Monitoring blood glucose—when to test, interpreting and using glucose pattern management for feedback</li> <li><input type="checkbox"/> Physical activity—safety, short-term vs. long-term goals/recommendations</li> <li><input type="checkbox"/> Preventing, detecting, and treating acute and chronic complications</li> <li><input type="checkbox"/> Nutrition—food plan, planning meals, purchasing food, preparing meals, portioning food</li> <li><input type="checkbox"/> Risk reduction—smoking cessation, foot care</li> <li><input type="checkbox"/> Developing personal strategies to address psychosocial issues and concerns</li> <li><input type="checkbox"/> Developing personal strategies to promote health and behavior change</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Review and reinforce treatment goals and self-management needs</li> <li><input type="checkbox"/> Emphasize preventing complications and promoting quality of life</li> <li><input type="checkbox"/> Discuss how to adapt diabetes treatment and self-management to new life situations and competing demands</li> <li><input type="checkbox"/> Support efforts to sustain initial behavior changes and cope with the ongoing burden of diabetes</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Provide support for the provision of self-care skills in an effort to delay progression of the disease and prevent new complications</li> <li><input type="checkbox"/> Provide/refer for emotional support for diabetes-related distress and depression</li> <li><input type="checkbox"/> Develop and support personal strategies for behavior change and healthy coping</li> <li><input type="checkbox"/> Develop personal strategies to accommodate sensory or physical limitation(s), adapting to new self-management demands, and promote health and behavior change</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Identify needed adaptations in diabetes self-management</li> <li><input type="checkbox"/> Provide support for independent self-management skills and self-efficacy</li> <li><input type="checkbox"/> Identify level of significant other involvement and facilitate education and support</li> <li><input type="checkbox"/> Assist with facing challenges affecting usual level of activity, ability to function, health beliefs, and feelings of well-being</li> <li><input type="checkbox"/> Maximize quality of life and emotional support for the patient (and family members)</li> <li><input type="checkbox"/> Provide education for others now involved in care</li> <li><input type="checkbox"/> Establish communication and follow-up plans with the provider, family, and others</li> </ul>

Figure 2

*Note.* Adapted from “Diabetes Self-Management Education and Support in Type 2 Diabetes: A Joint Position Statement of the American Diabetes Association, the American Association of Diabetes Educators, and the Academy of Nutrition and Dietetics,” by M.A. Powers, J. Bardsley, M. Cypress, P. Duker, M.M. Funnell, A.H. Fischl, M.D. Maryniuk, and E. Vivian, 2016, *Clinical Diabetes*, 34(2), 70-80.



**Figure 3**

## IRB Approval Letter

*Figure 3*

\*Any presentation or publication resulting from this project should explicitly state that it was undertaken as quality improvement

\*\*Lnk signature or email from the project leader is required.

<b>FOR OFFICE USE ONLY</b>	
Quality Improvement Determination Acknowledged, IRB review is not required.	
 HRPP Official	HRPP Official
 Signature	Date <u>11.19.18</u>

Revised 10/4/16